Ministerie van Verkeer en Waterstaat

Coastline management in the Netherlands

Kees Boer

Ministry of Transport, Public Works and Water Management
Directorate Noord-Holland

Trijnie Dijkhuis

Ministry of Transport, Public Works and Water Management
National Institute for Coastal and Marine Management / RIKZ

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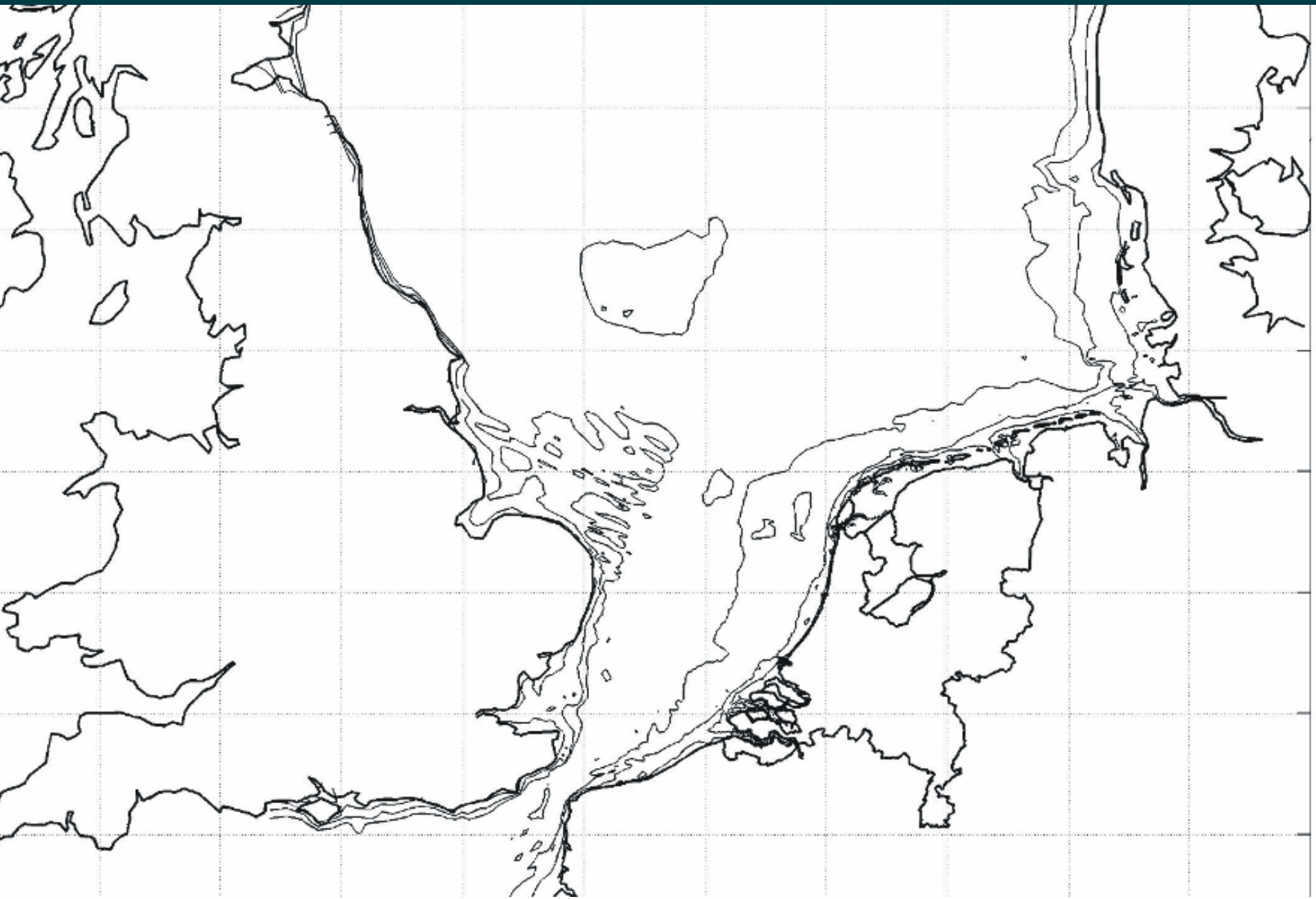
Coastline management in the Netherlands

1. Implementation of coastline management
2. Organisation of coastline management
3. Current Dutch issues

Part 1

Brief outline of (technical) content of coastline management in the Netherlands



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The Dutch coastline

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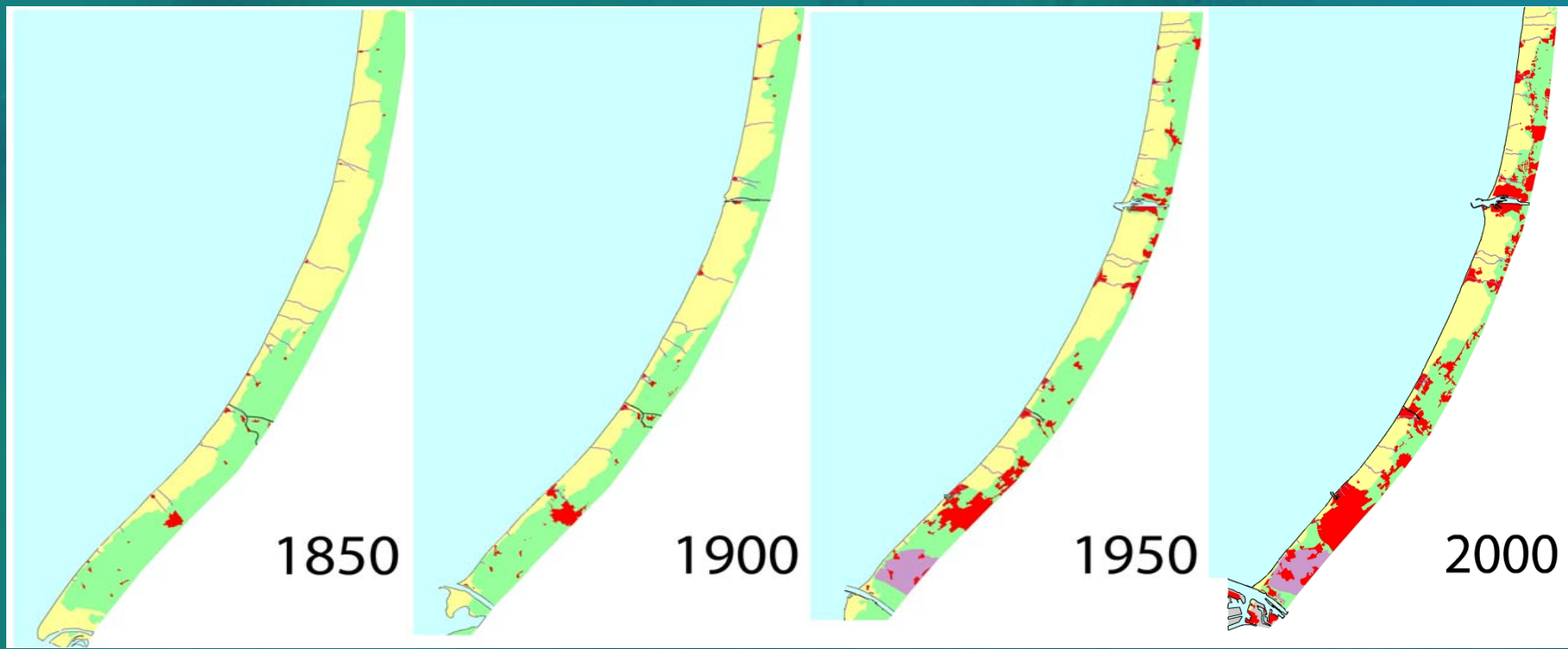
Pressure on the coastline (1): from land

Building development



Pressure on the coastline (2): from sea

Sea level rise. 3 scenario's:

- 20 cm per century: for decisions with short design life (low investment or high degree of flexibility) (sand nourishments)
- 60 cm per century: for decisions with design life of 50-100 years (dikes and storm surge barriers).
- 85 cm per century + 10% increase of windspeed per century: to be applied for allocation of space.

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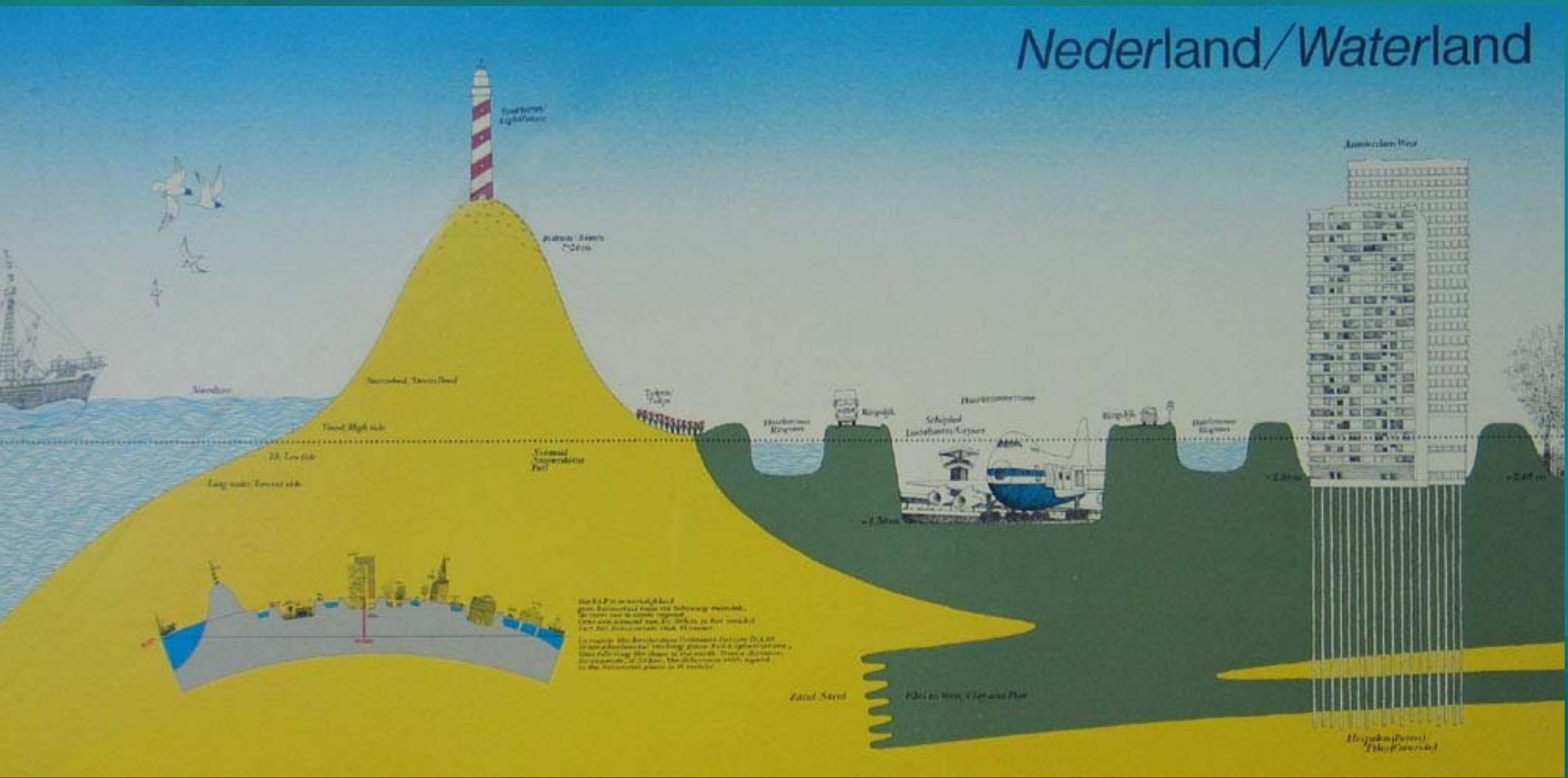
Netherlands behind the dikes and dunes



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Floodable area protected by sea defence

Land surface	33,000 sq km	50% below
GDP	430,000 million €	60% below
Population	16 million	60% below

Legislative standards for flood safety for hinterland

- Coast of Holland: 1/10.000
- Elsewhere along the coast: 1/4000

Responsibilities

- *Waterboards*: maintaining the flood defences (dikes and dunes) to meet the legislative flood safety standards
- *Ministry of Transport, Public Works and Water Management*: managing the coastline

Parameters for coastline management (1)

Aim:

preventing landward retreat coastline / keep position of 1990 coastline

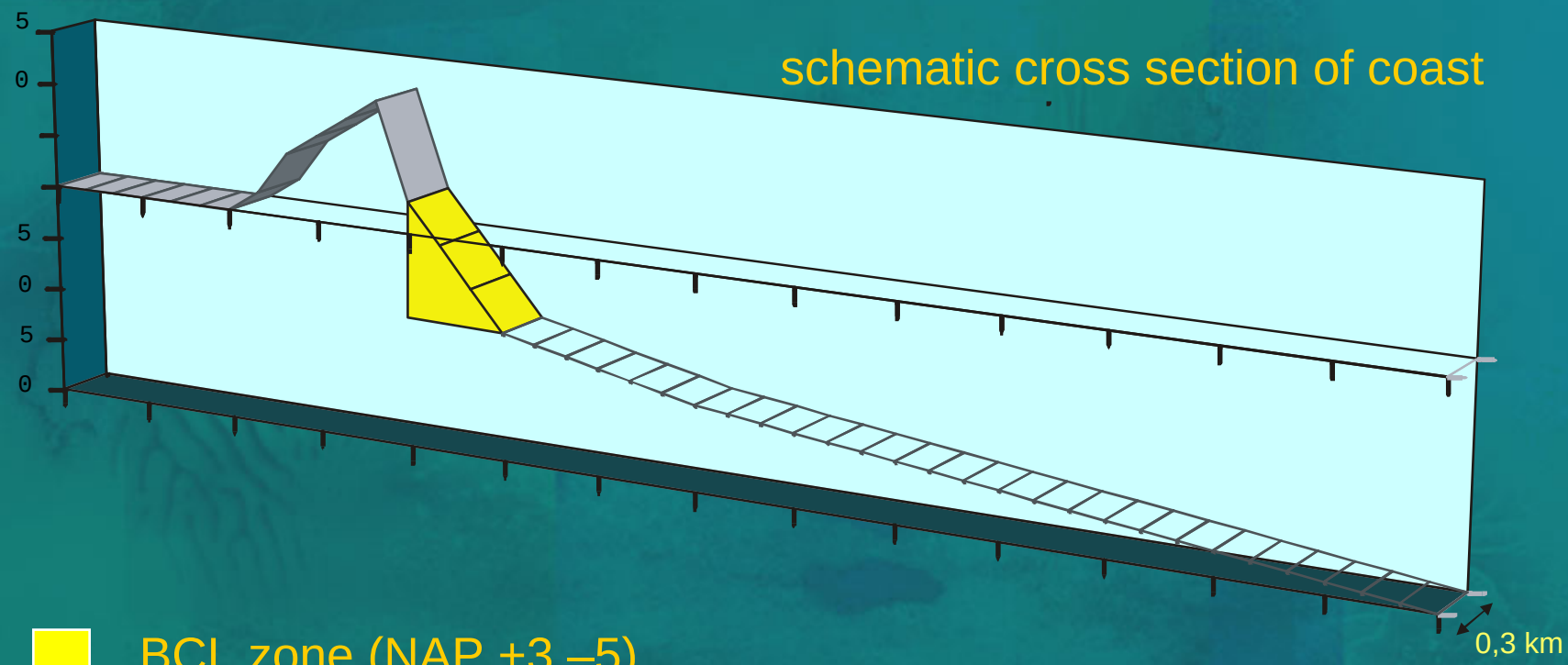
Parameter:

Basal Coast Line

Indicator:

not more than 10% of the coastline may be at the landward side of the BCL

Definition of BCL



BCL zone (NAP +3 –5)

Parameters for coastline management (2)

Aim:

preventing LT erosion (preventing the coast getting steeper)

Parameter:

volume of coastal foundation

Indicator:

amount of nourishments; 12 million m3 of sand has to be nourished yearly in coastal foundation

Definition of coastal foundation

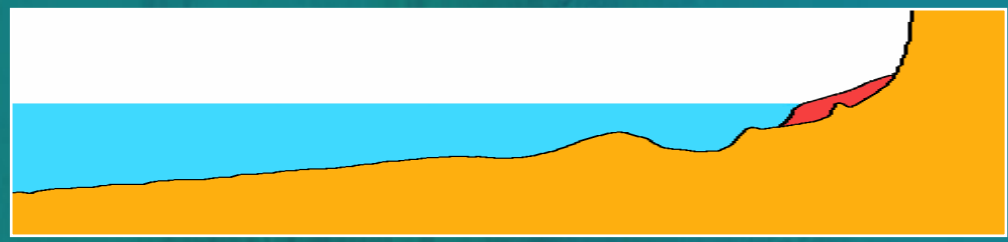
First line of dunes up to
-20 m NAP

Vision: River of Sand

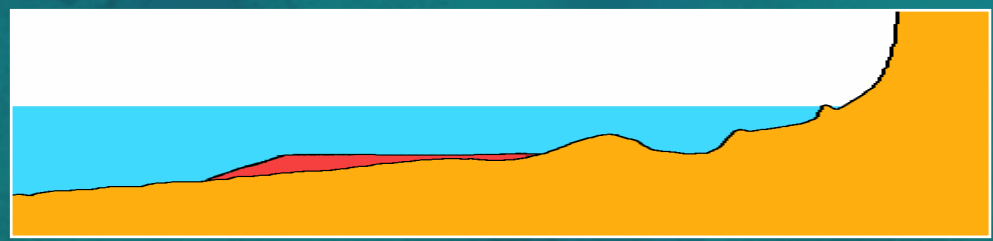
River of sand: step-wise strategy
1: let sand flow freely
2: maintain sand volume
3: stabilise only when necessary

Nourishment types

- Beach nourishments



- Shore face nourishments



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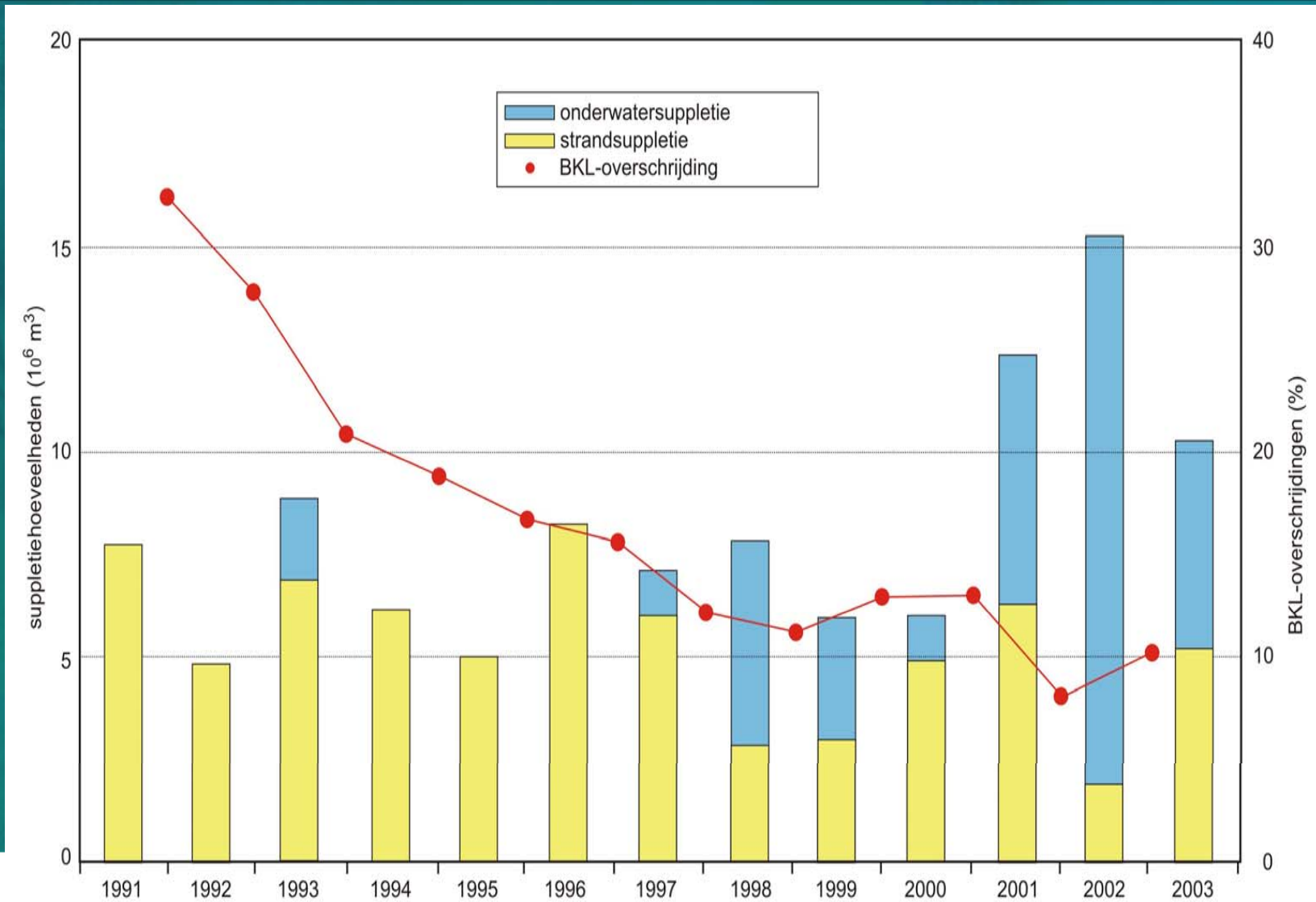
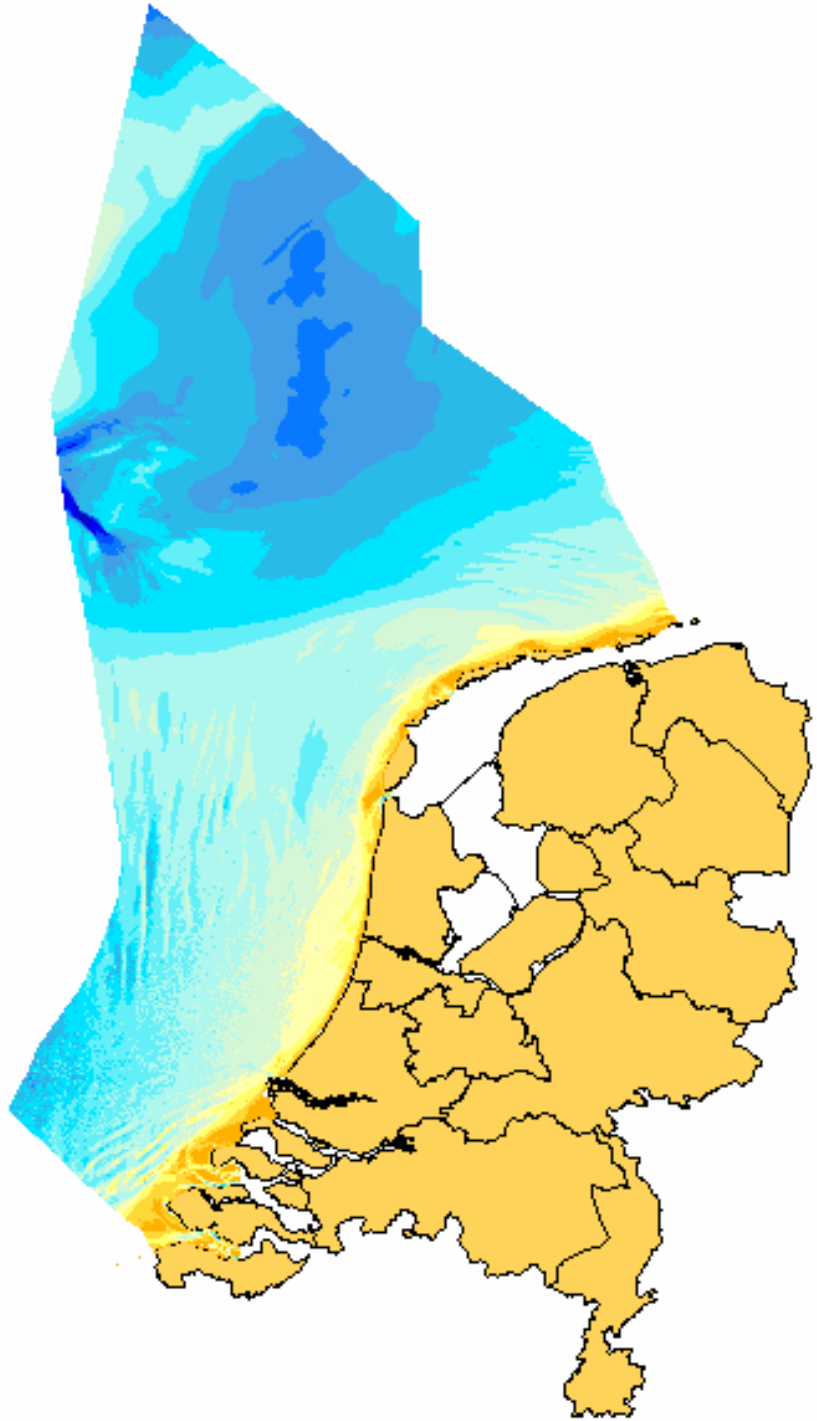
Amount of beach vs shore face nourishments



Location of sand mining



Questions for clarification

Part 2

Brief outline of the way coastline management is organised in the Netherlands

Authorities involved

National level:

Ministry of Public Works & Water Management

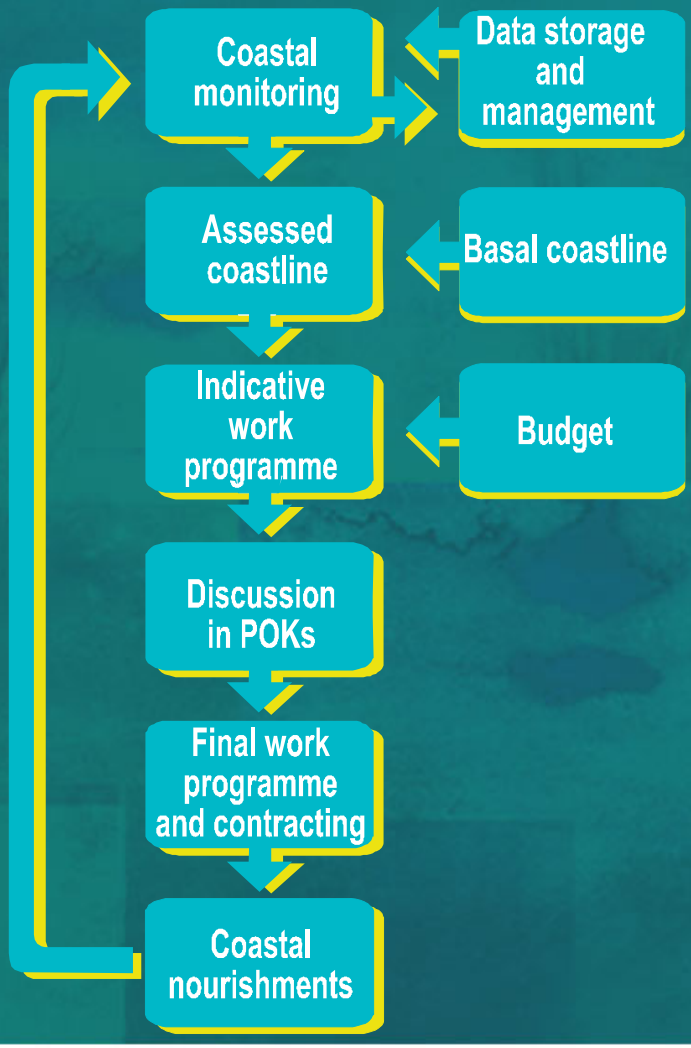
DG Water: coastal policy

Rijkswaterstaat: nourishment for BCL and coastal foundation

Regional level:

- Provincial Coastal Consultation Bodies (a.o. for advice location nourishments)
- Water Boards: responsible for strength of dikes and dunes (function: preventing hinterland from flooding)

Cycle for nourishments



Financial aspects

The Ministry of Public Works & Water Management:

- decides upon the nourishment scheme
- pays for all the nourishments (about 44 million euros a year)

Questions for clarification

Part 3

Topical issues in The Netherlands

Responsibility and payment of nourishments

The Ministry of Public Works & Water Management is responsible for management of the coastline (BCL and coastal foundation) and pays for all the nourishments (about 44 million euros a year)

Discussion concerning location and type of nourishments (1)

Location and type is now almost solely defined by assessment BCL, and thus **not** also by:

1. Where sand is needed for risk management of coastal towns (= not the objective)
2. Where sand is needed for other functions (tourism, nature, etc.) (= not the objective)
3. where it is needed for the coastal foundation (although this **is** the objective)

Regional and local authorities want more attention for 1 and 2

➔ How do we want to deal with this?

Discussion concerning location and type of nourishments (2)

➔ How do we want to deal with this?

- Do we want to serve more objectives? (like 1 and 2?)
- If so, who has to pay?
- Do we really want to nourish on places where it is needed for the coastal foundation? (LT approach with no ST benefit)

Ecology aspects

EU legislation: Bird and Habitat Directive

What are the consequences for nourishments?

- Time of year? We nourish in summertime (weather conditions), but should we nourish in the winter?
- Beach vs shore face. Is the one in favour of the other? And if so, is this so important that this should influence the preference type chosen?

How do we increase efficiency of nourishments?

- Less frequent large nourishments instead of more frequent smaller ones? (And if this is the case how do we weigh this against other interests that prefer small ones?)
- How can we optimise the design of shore face nourishments in order to maximise sand transport from deeper water to the coastline?
- What is the optimal nourishment design in relation to the natural sandbanks?

Other aspects

Rip currents / safety for swimmers

- Can we optimise nourishment design for this?
- Can we forecast them?

If we need to stabilise sand (step 3 in our sand river vision), which innovative techniques can be used?

- geotextile?
- Bacteria to stabilise shore face or dunes?

Questions and discussion